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Self-esteem and resilience: the connection with risky behavior among adolescents

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Abstract

The aim was to explore the association of self-esteem and resilience with smoking and cannabis use among adolescents, separately for gender. A sample of 3 694 adolescents (mean age 14.3 years) from elementary schools in Slovakia filled out the Rosenberg Self-esteem scale, the Resiliency scale and answered questions about cigarette and cannabis use. Logistic regression models showed associations between negative self-esteem and risky behavior, but only among boys. Regarding resilience, structured style and family cohesion were associated with a lower probability of smoking and cannabis use among both boys and girls. In contrast, social competence increased the probability of smoking and cannabis use among both groups. Negative self-esteem seems to play an important role regarding smoking and cannabis use among boys. Resilience seems to have mixed effects, some aspects being protective while other aspects increase the likelihood of smoking and use of cannabis. These results imply that the prevention of substance use should target not only specific individual characteristics, but also the possible risk or protective influences of the social environment, i.e. the family and social network.

Introduction

Smoking is the most common form of substance use, and its harmful impact on health is well known. Tobacco use among young people leads to short-term health problems, including reduced lung function, increased asthmatic problems, coughing, wheezing and shortness of breath, and reduced physical fitness. It also leads to greater susceptibility to and severity of respiratory illness (Currie et al., 2004). Similarly, cannabis is also widely used and is most frequently used by adolescents as their first illicit drug (Kingery, 1999). Recently, young people have reported using more drugs and starting to do so at an earlier age (Currie et al., 2004). Patterns of substance use, initiation and progression in adolescence are generally considered to be predictive of later involvement with substance use and exposure to its harmful consequences (Tucker, Ellickson, Orlando, Martino, & Klein, 2005). Understanding the factors associated with substance use in adolescents is therefore essential in the field of prevention and health promotion.

Many studies from the past decade have focused on the role of self-esteem in relation to health-related behavior, whether it is a health-enhancing or health-endangering behavior. Additionally, self-esteem has been shown to be associated with initiation and continuation of the use of tobacco and cannabis (Kokkevi, Richardson, Florescu, Kuzman, & Stergar, 2007; Wild, Flisher, Bhana, & Lombard, 2004; Carvajal, Wiatrek, Evans, Knee, & Nash, 2000; Glendinning & Inglis, 1999; Hofler et al., 1999). However, self-esteem should be seen not only as a single factor but also in the framework of a multidimensional theory, considering its connection with other factors as well. Positive self-esteem could be seen as an essential feature of mental health and also as a protective factor in the field of health and social behavior. In contrast, negative self-esteem could play an important role in the development of a range of mental disorders and social problems, such as depression, anxiety, violence, high-risk behaviors and substance use (Mann, Hosman, Schaalma, & de Vries, 2004). Outcomes of low or negative self-esteem differ considerably by gender. Negative self-esteem among boys leads more often to externalizing problems, while among girls mostly to internalizing problems (Gjerde, Block, & Block, 1988).

An explanation for the role of self-esteem in substance use may be provided by framing it within resilience. Several authors consider self-esteem to be part of resilience on the individual level (Kumpfer, 1999; Masten & Coatsworth, 1998). Resilience itself could be seen as the process of, capacity for, or outcome of successful adaptation in the face of challenging or threatening circumstances. Resilient children and adolescents have within themselves, their family, their peer-group and

their environment, protective factors that help to buffer them from the negative forces or stresses to which they are exposed in their everyday life (Boyce Rodgers & Rose, 2002; Kumpfer, 1999). Other studies (Buckner, Mezzacappa, & Beardslee, 2003; Gordon Rouse, Ingersoll, & Orr, 1998) have also observed that resilient adolescents had higher self-esteem and were less likely to be involved in risky behavior in comparison to their less resilient peers.

To summarize, self-esteem, which could be seen as part of the individual domain within the resilience framework (Currie et al., 2004), together with other aspects including family, peer-group and environment, is considered as an influential factor in physical/mental health and health-related behavior. It consequently deserves special attention in health promotion. The main aim of the present study was therefore to investigate the association between self-esteem along with resiliency factors and the various forms of risky behavior among adolescents, separately among boys and girls. We explored a model in which positive and negative factors of self-esteem were connected with the aspects of young people's resilience, and we explored their association with tobacco and cannabis use. We assumed negative self-esteem as a risk factor and positive self-esteem as a protective factor for cigarette and cannabis use. We also assumed resiliency aspects to be protective factors in relation to the mentioned forms of risky behavior.

Methods

Sample and Procedure

The study sample consisted of 3 725 adolescents in the 8th and 9th grades at elementary schools in the major cities of Bratislava (600 000 inhabitants, Western Slovakia), Zilina (156 000 inhabitants, Northern Slovakia), Kosice (240 000 inhabitants, Eastern Slovakia) and other smaller cities (10 000 – 40 000 inhabitants) in the eastern region of Slovakia, representing different parts of the country. The study sample was fairly evenly divided by gender (49% boys, 51% girls) and ranged in age from 11 to 17 years (mean age 14.3 years, SD 0.65). We decided to exclude the students aged under 13 and over 16 to make the sample more homogeneous and to avoid the influence of age extremes. After this step, the study sample consisted of 3 694 students (mean age 14.3 years, SD 0.62), with 24.6% coming from Bratislava, 21.3% from Zilina, 32.1% from Kosice and 22% from other eastern region cities.

Trained researchers and research assistants collected the data between October and December 2006. The set of questionnaires was administered during two regular 45-minute lessons in a complete

90-minute time period on a voluntary and anonymous basis in the absence of the teachers. The overall response rate was 93.5%. Non-response was due to illness or another type of school absence.

Measures

Self-esteem

Self-esteem was assessed using the Rosenberg Self-esteem scale RSES (Rosenberg, 1965). The 10 items of the RSES assess a person's overall evaluation of his/her worthiness as a human being (Rosenberg, 1979). Responses range on a 4-point scale from 1 (strongly disagree) to 4 (strongly agree). The RSES can be divided into an equal number of positively and negatively worded items measuring positive and negative self-esteem (Sarkova et al., 2006). Items were standardized and summed for the two factors (positive and negative self-esteem), with the sum score ranging from 5 to 20 for each factor. A higher score indicates higher self-esteem. Cronbach's alpha for the positive self-esteem subscale was 0.73 and for the negative self-esteem subscale 0.64.

Resilience

A Resilience Scale consisting of 33 items was used for measuring the respondents' resilience. This instrument used a five-point semantic scale format in which each item had a positive and negative attribute at either end of the scale continuum. The positive attributes were keyed to the right for half of the items to reduce acquiescence biases (Hjemdal, Friborg, Martinussen, & Rosenvinge, 2001). The scale consisted of the six aspects of resilience: personal strength/perception of self (6 items, sum score from 6 to 30), personal strength/perception of future (4 items, sum score from 4 to 20), structured style (4 items, sum score from 4 to 20), social competence (6 items, sum score from 6 to 30), family cohesion (6 items, sum score from 6 to 30), and social resources (7 items, sum score from 7 to 35) (Friborg, Barlaug, Martinussen, Rosenvinge, & Hjemdal, 2005). Cronbach's alpha was 0.63, 0.77, 0.60, 0.69, 0.74, and 0.83, respectively. A higher score indicates higher resilience.

Risky behavior

Within the scope of adolescents' risky behavior, the focus was on smoking and cannabis use. Smoking was measured with one question asking about this type of risky behavior; "Have you ever smoked a cigarette?" with the responses (1) no, never, (2) yes, I have tried, (3) yes, I used to smoke but I have quit, (4) yes, I smoke occasionally, (5) yes, now I smoke every day. We dichotomized the responses to this question for logistic regression in two ways. Firstly, we dichotomized the responses regarding experience with smoking: without experience - (1) no, never / with experience - the remaining four answers. In the second dichotomization we considered

regular smoking: not regular smoker - (2) yes, I have tried, (3) yes, I used to smoke but I have quit, (4) yes, I smoke occasionally / regular smoker - (5) yes, now I smoke every day. We chose this dichotomization because of the young age of the study sample, which ranged in age from 13 to 16 years. At this young age there could be found a substantial group of experimental smokers with only early experiences regarding smoking (experienced vs. inexperienced) and a smaller group of regular smokers who went from experimental smoking to regular smoking. This also describes current vs. non-current smoking, but comprises fewer respondents in the current group, thus limiting the power of our study. Therefore, we at the same time used the first dichotomization regarding experience with smoking. Cannabis use was measured with one question: "Have you ever smoked cannabis?" with the responses (1) no, never, (2) yes, I have tried, (3) yes, I smoke occasionally, (4) yes, now I smoke every day. We dichotomized the responses to this question for logistic regression as with or without experience with cannabis use.

Statistical analysis

Standard descriptive analyses were performed in the first step. Next, we explored gender differences in the patterns of smoking behavior and cannabis using chi-square tests. Finally, logistic regression models were performed to determine the associations of self-esteem and resilience with smoking behavior (previous experience with smoking and regular smoking) and cannabis use (previous experience with cannabis) as dependent variables. We did this multivariately with mutually-adjusted effects of both self-esteem and resilience. These analyses were performed separately for boys and girls. All analyses were performed using SPSS version 14.

Results

Table 4.1 shows the descriptive statistics for self-esteem and resilience subscales separately for boys and girls. Within all subscales there were significant gender differences. Boys had higher positive and lower negative self-esteem than girls. Within the resilience subscales boys had higher perception of self, perception of future and structured style, whereas girls reported higher social competence, family cohesion and social resources. Regarding risky behavior among the Slovak adolescents in the sample, significantly more boys than girls reported previous smoking and previous cannabis use.

Table 4.1 Descriptive statistics for self-esteem, resilience and risky behavior by gender

	Boys (n = 1 810)			Girls (n = 1 884)			<i>p</i>
Smoking (n, %)							
any previous use of cigarettes	1165	68.0		1121	62.1		<i>p</i> < .001
regular use of cigarettes	162	9.5		161	8.9		<i>p</i> > .05
Cannabis (n, %)							
any previous use of cannabis	342	20.2		201	11.2		<i>p</i> < .001
Self-esteem ^a (range, Mean, SD)							
positive self-esteem	5-20	15.53	2.31	5-20	14.59	2.40	<i>p</i> < .001
negative self-esteem	5-20	11.56	2.69	5-20	12.45	2.83	<i>p</i> < .001
Resilience ^b (range, Mean, SD)							
perception of self	6-30	22.21	3.87	6-30	21.67	3.89	<i>p</i> < .001
perception of future	4-20	15.10	3.42	4-20	14.67	3.63	<i>p</i> < .001
structured style	4-20	12.66	2.83	4-20	12.43	3.03	<i>p</i> < .05
social competence	6-30	22.39	4.10	6-30	23.55	4.02	<i>p</i> < .001
family cohesion	6-30	21.50	4.42	6-30	21.61	4.74	<i>p</i> < .001
social resources	7-35	27.32	5.20	7-35	29.42	4.81	<i>p</i> < .001

^a Higher scores indicate higher self-esteem.

^b Higher scores indicate higher resilience.

In Table 4.2 the correlations between the self-esteem and resilience subscales are shown. Both positive and negative self-esteem correlate significantly with all the resilience subscales.

Table 4.2 Correlations matrix for self-esteem and resilience variables

	1	2	3	4	5	6	7	8
1 positive self-esteem	1							
2 negative self-esteem	-.47***	1						
3 perception of self	.43***	-.40***	1					
4 perception of future	.32***	-.30***	.50***	1				
5 structured style	.14***	-.14***	.25***	.28***	1			
6 social competence	.24***	-.21***	.44***	.40***	.18***	1		
7 family cohesion	.22***	-.27***	.37***	.37***	.30***	.33***	1	
8 social resources	.20***	-.23***	.45***	.38***	.18***	.60***	.49***	1

****p* < .001

Table 4.3 shows the association of self-esteem and resilience with regular smoking, with estimated odds ratios (95% confidence intervals) of all the self-esteem and resilience covariates. In the univariate analyses, negative self-esteem was significantly associated with regular smoking among both boys and girls. In both groups higher negative self-esteem increased the probability of regular smoking. From the resilience subscales, higher perception of future and family cohesion decreased the probability of regular smoking among both boys and girls. Finally, structured style associates significantly with this behavior, decreasing the probability of regular smoking only among girls.

In the multivariate analyses, higher positive self-esteem decreased the probability of regular smoking and higher scores of negative self-esteem increased the probability of regular smoking, but only among boys. No significant association between self-esteem and regular smoking was found among girls. Within the resilience subscales, family cohesion was strongly associated with the probability of regular smoking in both genders, while a higher score in family cohesion decreased the probability of regular smoking. A higher score in social competence increased the probability of regular smoking among both boys and girls, while perception of future and structured style decreased the probability of regular smoking only among girls.

Similar results were obtained regarding any previous use of cigarettes. Negative self-esteem was associated with previous use of cigarettes only among boys, and from the resilience subscales, structured style, social competence and family cohesion were associated with previous cigarette use among both groups.

Table 4.3 Logistic regression (univariate and multivariate) for self-esteem and resilience associated with regular use of cigarettes, by gender.

	Regular use of cigarettes (univariate)		Regular use of cigarettes (multivariate)	
	Boys OR (95% CI)	Girls OR (95% CI)	Boys OR (95% CI)	Girls OR (95% CI)
Self-esteem scale				
positive self-esteem	0.93 (0.87 - 0.99)*	1.04 (0.97 - 1.12)	0.89 (0.81 - 0.98)*	1.04 (0.94 - 1.14)
negative self-esteem	1.11 (1.04 - 1.18)***	1.10 (1.04 - 1.17)***	1.17 (1.08 - 1.27)***	1.05 (0.97 - 1.14)
Resilience scale				
perception of self	0.96 (0.92 - 1.01)	0.97 (0.93 - 1.01)	0.98 (0.91 - 1.05)	1.02 (0.96 - 1.08)
perception of future	0.96 (0.91 - 1.01)	0.93 (0.89 - 0.97)***	0.99 (0.93 - 1.07)	0.94 (0.89 - 1.00)*
structured style	0.93 (0.88 - 0.99)*	0.87 (0.82 - 0.92)***	0.95 (0.88 - 1.03)	0.92 (0.86 - 0.99)*
social competence	1.01 (0.97 - 1.06)	1.02 (0.98 - 1.07)	1.12 (1.05 - 1.19)***	1.07 (1.01 - 1.14)*
family cohesion	0.89 (0.85 - 0.93)***	0.89 (0.86 - 0.92)***	0.89 (0.84 - 0.94)***	0.90 (0.87 - 0.94)***
social resources	0.97 (0.94 - 1.01)	0.98 (0.95 - 1.01)	0.99 (0.94 - 1.04)	1.02 (0.97 - 1.07)

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 4.4 shows the association of self-esteem and resilience with previous use of cannabis. In the univariate analyses, negative self-esteem was significantly associated with cannabis use among both boys and girls. In both groups higher negative self-esteem increased the probability of this behavior. Also from the resilience subscales in the group of boys, structured style, family cohesion and social resources associated significantly with any previous cannabis use and decreased the probability of use, while social competence increased the probability of this behavior. Among girls, perception of future, structured style, social competence and family cohesion associates significantly with previous cannabis use. Higher perception of future, structured style and family cohesion decreased the probability of previous cannabis use, while social competence increased the probability of this behavior.

In the multivariate analyses, negative self-esteem was associated with previous experience with cannabis. Higher scores in this subscale increased the probability of cannabis experience, but only among boys. No significant association was found with both positive or negative self-esteem and cannabis experience among girls. The resilience subscales for structured style, social competence and family cohesion were also associated with cannabis experience among both boys and girls. Higher scores on structured style and family cohesion decreased the probability of cannabis experience. In contrast, a higher score in social competence increased the probability of cannabis experience.

From a theoretical perspective, SES could be relevant. We adjusted the analyses for SES using the Family affluence scale as an indicator for socioeconomic status, but it led to very similar results. We also explored the possible connection between self-esteem and the resilience subscales. We computed sum scores for the resilience scale and created subgroups of resilient and non-resilient adolescents by dichotomizing the sum scores. We then performed logistic regression analyses for both subgroups, and the results were very similar.

Table 4.4 Logistic regression (univariate and multivariate) for self-esteem and resilience associated with cannabis use, by gender.

	Any previous use of cannabis (univariate)		Any previous use of cannabis (multivariate)	
	Boys OR (95% CI)	Girls OR (95% CI)	Boys OR (95% CI)	Girls OR (95% CI)
Self-esteem scale				
positive self-esteem	1.04 (0.98 - 1.09)	0.96 (0.90 - 1.01)	0.96 (0.90 - 1.03)	0.98 (0.90 - 1.07)
negative self-esteem	1.06 (1.01 - 1.11)**	1.08 (1.02 - 1.14)***	1.07 (1.00 - 1.13)*	1.05 (0.98 - 1.13)
Resilience scale				
perception of self	0.98 (0.95 - 1.01)	0.98 (0.95 - 1.02)	0.99 (0.94 - 1.04)	1.02 (0.97 - 1.08)
perception of future	0.98 (0.94 - 1.02)	0.95 (0.92 - 0.99)*	1.00 (0.95 - 1.05)	0.96 (0.91 - 1.02)
structured style	0.93 (0.89 - 0.98)***	0.84 (0.79 - 0.88)***	0.95 (0.90 - 1.00)*	0.89 (0.83 - 0.94)***
social competence	1.04 (1.01 - 1.08)**	1.05 (1.01 - 1.09)*	1.15 (1.10 - 1.21)***	1.08 (1.02 - 1.14)**
family cohesion	0.93 (0.90 - 0.96)***	0.88 (0.86 - 0.91)***	0.92 (0.88 - 0.96)***	0.89 (0.85 - 0.92)***
social resources	0.97 (0.95 - 0.99)*	1.00 (0.96 - 1.02)	0.97 (0.93 - 1.00)	1.02 (0.98 - 1.07)

*p < .05 **p < .01 ***p < .001

Discussion

Review of major findings

Since early initiation to smoking and cannabis use is very predictive of later use (Chassin, Presson, Rose, & Sherman, 1996), it is essential to focus on the possible antecedents of such behavior. The main focus in the present study was on the role of self-esteem and resilience factors in terms of tobacco and cannabis use. We assumed negative self-esteem as a risk factor for cigarettes and cannabis use, and we also assumed resiliency aspects to be protective factors in relation to these forms of risky behavior.

We assumed negative self-esteem as a risk factor for cigarettes and cannabis use and we also assumed resiliency aspects to be protective factors in relation to these forms of risky behavior. From the two self-esteem factors, only negative self-esteem seems to play an important role in risky behavior among adolescent boys and girls. No significant association was found among girls after adding resilience subscales. Gender differences could be explained by recent studies (Mann et al., 2004; Benjet & Hernandez-Guzman, 2001; Gjerde et al., 1988) regarding externalizing and internalizing behaviors in the context of negative self-esteem. Girls with lower or negative self-esteem are possibly more likely to have internalizing problems (depression, eating disorders, anxiety) than boys. In contrast, boys with the low or negative self-esteem are more likely to have externalizing problems (aggression, violence, health-related risky behavior) than girls (Leadbeater, Kuperminc, Blatt, & Hertzog, 1999). Thus, low feelings of self-worth seem to have different consequences, depending on gender. Among girls it leads more often to depression, anxiety and other internalizing symptoms whereas among boys it leads mostly to the problem behavior and other externalizing symptoms. In our results the association between negative self-esteem and risky behavior remains statistically significant only among boys, a fact consistent with the assumption that negative self-esteem is connected with problem behavior more often among boys (Mann et al., 2004).

It seems that boys and girls do not differ in regard to resilience factors. Among both groups the same factors (structured style, social competence and family cohesion) contributed to risky behavior. The results indicate that resilient adolescents, in comparison with their less resilient peers, are less likely to involve themselves in health-endangering behavior. Protective factors were found within the individual (perception of future and structured style) but also in the young people's environment. The family in particular, with its supporting power, seems to play an important part in the prevention of risky behavior. Our results are in the agreement with those of other studies (Miller & Plant, 2002; von Sydow K., Lieb, Pfister, Hofler, & Wittchen, 2002).

However, the role of social competence as a resilience factor seems to be different in terms of risky behavior, since higher social competence was associated with more frequent risky behavior among both groups. Consistent with the findings of other studies (Lillehoj, Trudeau, Spoth, & Wickrama, 2004; Simons-Morton & Haynie, 2003; Dolcini & Adler, 1994), social competence might actually increase adolescents' exposure to social opportunities to smoke, whether tobacco or cannabis. More socially competent adolescents might be more likely to find themselves in situations and places where exposure to cigarettes is high. This social environment provides an interpersonal context for the initiation and continuation of substance use as normative, acceptable behavior, and at the same time increases the opportunity and exposure to experiential learning from older individuals, including substance use behaviors (Scheier, Botvin, Diaz, & Griffin, 1999).

Strengths and limitations

This study has some limitations. One is the reliance on only subjective self-reports for measuring individual aspects, and especially for substance use. Another limitation is the cross-sectional study design itself, which could limit our suggestions about the direction of causation in the findings. A longitudinal design would have strengthened the study and provide more reliability in the results and conclusions. On the other hand the research sample, covering all the different regions of the country and focusing on the age group of young adolescents, provides valuable information about substance use and its possible antecedents.

Implications and Conclusion

Our study shows cigarette smoking in particular to be a major concern in the field of health promotion. The great prevalence of this behavior among young adolescents reveals the necessity for efficient prevention from an early age. Intervention programs should focus not only on the specific individual, but also on the social and environmental influences. The best place to deliver these programs is the school, which is the most important place in adolescence after family and at the same time is easily reachable. In this environment it is essential to eliminate negative self-esteem by providing variety of activities establishing the feeling of self-worth and at the same time keeping young people from risky behavior. This could for instance be reached by trainings on how to cope with things like a friend that offers a cigarette or by giving positive feedback on abstaining from use of alcohol at a young age. This may yield appropriate social competences to face emerging pressure of peers and social environment regarding smoking, cannabis use and other forms of risky behavior. In addition, the role of social competence, which might lead young people into substance use involving situations and places, is an interesting finding

which implies the need for more thorough and detailed research. Less exposure to the risky behavior connected with peer programs focusing on all the protective factors within the individual and in his/her environment could be a way of enhancing the health of adolescents.

In conclusion, the results show the association between negative self-esteem and risky behavior only among boys. In addition, among the resiliency aspects, structured style, social competence and family cohesion play an important role in both boys and girls. However, considering the resilience framework, it might also be helpful to keep in mind the possibility that its aspects could not only decrease, but also increase, the likelihood of health-related risky behavior among adolescents.

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